

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
8 January 2004 (08.01.2004)

PCT

(10) International Publication Number
WO 2004/003231 A2

- (51) International Patent Classification⁷: **C12Q 1/68**
- (21) International Application Number:
PCT/IB2003/002994
- (22) International Filing Date: 1 July 2003 (01.07.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
0215185.0 1 July 2002 (01.07.2002) GB
- (71) Applicant (for all designated States except US): **PARTICLE SOLUTION AS** [NO/NO]; Rickard Birkelandsvei 2B, N-7491 Trondheim (NO).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **KILAAS, Lars** [NO/NO]; Skansegaten 17C, N-7014 Trondheim (NO). **DYRLI, Anne, Dalager** [NO/NO]; Skansegaten 17C, N-7014 Trondheim (NO). **SKAGESTAD, Vidar** [NO/NO]; Kitty Kiellandsvei 15G, N-1344 Haslum (NO).
- (74) Common Representative: **PARTICLE SOLUTION AS**; c/o Page White & Farrer, 54 Doughty Street, London WC1N 2LS (GB).
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:**
— without international search report and to be republished upon receipt of that report
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: BINDING A TARGET SUBSTANCE

(57) Abstract: Magnetic particles capable of binding a target substance, which comprise a magnetic material and a matrix material, wherein the magnetic material is remanent upon exposure to a magnetic field and the matrix material has a surface comprising functional groups which promote disaggregation of the particles in the presence of a liquid phase.



WO 2004/003231 A2

Rec'd PCT/PTO 20 DEC 2004

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
8 January 2004 (08.01.2004)

PCT

(10) International Publication Number
WO 2004/003231 A3

(51) International Patent Classification⁷: **C12Q 1/68**,
G01N 33/543, C12N 15/10, B03C 1/01, B01D 15/00

(21) International Application Number:
PCT/IB2003/002994

(22) International Filing Date: 1 July 2003 (01.07.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0215185.0 1 July 2002 (01.07.2002) GB

(71) Applicant (for all designated States except US): **PARTICLE SOLUTION AS** [NO/NO]; Rickard Birkelandsvei 2B, N-7491 Trondheim (NO).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **KILAAS, Lars** [NO/NO]; Skanseгатen 17C, N-7014 Trondheim (NO). **DYRLI, Anne, Dalager** [NO/NO]; Skanseгатen 17C, N-7014 Trondheim (NO). **SKAGESTAD, Vidar** [NO/NO]; Kitty Kiellandsvei 15G, N-1344 Haslum (NO).

(74) Common Representative: **PARTICLE SOLUTION AS**; c/o Page White & Farrer, 54 Doughty Street, London WC1N 2LS (GB).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

(88) Date of publication of the international search report:
11 March 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: REMANENT MAGNETIC PARICLES CAPABLE OF BINDING A TARGET SUBSTANCE, THEIR PRODUCTION AND USES THEREOF

(57) Abstract: Magnetic particles capable of binding a target substance, which comprise a magnetic material and a matrix material, wherein the magnetic material is remanent upon exposure to a magnetic field and the matrix material has a surface comprising functional groups which promote disaggregation of the particles in the presence of a liquid phase.

WO 2004/003231 A3

INTERNATIONAL SEARCH REPORT

International Application No
PCT/IB 03/02994

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C12Q1/68 G01N33/543 C12N15/10 B03C1/01 B01D15/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C12Q G01N C12N B03C B01D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 01 71732 A (MANZ THOMAS ;QIAGEN GMBH (DE); FABIS ROLAND (DE); RITT CHRISTOPH ()) 27 September 2001 (2001-09-27) page 1, line 26 -page 2, line 36 page 5, line 32 -page 6, line 25 page 7, line 14 - line 16 page 14 -page 16; claims abstract	1-55
A	WO 99 19000 A (UNIV NEW YORK) 22 April 1999 (1999-04-22) page 19, line 14 -page 24, line 7 abstract	1-55
A	WO 97 22366 A (IGEN INC) 26 June 1997 (1997-06-26) page 8, line 15 - line 17 abstract	1-55
	-/--	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

7 November 2003

Date of mailing of the international search report

16. 12. 2003

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Maline Soderman

INTERNATIONAL SEARCH REPORT

International Application No
PCT/IB 03/02994

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4 157 323 A (MOLDAY ROBERT S ET AL) 5 June 1979 (1979-06-05) abstract ---	1-55
A	DATABASE WPI Section Ch, Week 199650 Derwent Publications Ltd., London, GB; Class A18, AN 1996-502720 XP002260583 -& JP 08 259607 A (NIPPON GOSEI GOMU KK), 8 October 1996 (1996-10-08) abstract ---	1-55
P,A	WO 03 004150 A (GENOVISION AS ;KILAAS LARS (NO); SKAGESTAD VIDAR (NO)) 16 January 2003 (2003-01-16) abstract ---	1-55
P,A	WO 03 004151 A (GENOVISION AS ;KILAAS LARS (NO); SKAGESTAD VIDAR (NO)) 16 January 2003 (2003-01-16) abstract -----	1-55

INTERNATIONAL SEARCH REPORT

International Application No

PCT/IB 03/02994

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 0171732	A	27-09-2001	AU 6380001 A	03-10-2001
			CA 2400724 A1	27-09-2001
			WO 0171732 A2	27-09-2001
			EP 1266385 A2	18-12-2002
			JP 2003528455 T	24-09-2003
			US 2003148101 A1	07-08-2003

WO 9919000	A	22-04-1999	AU 9691298 A	03-05-1999
			WO 9919000 A1	22-04-1999

WO 9722366	A	26-06-1997	WO 9722366 A1	26-06-1997
			AU 4524696 A	14-07-1997
			EP 0879063 A1	25-11-1998

US 4157323	A	05-06-1979	US 4206094 A	03-06-1980

JP 8259607	A	08-10-1996	NONE	

WO 03004150	A	16-01-2003	WO 03004150 A1	16-01-2003

WO 03004151	A	16-01-2003	WO 03004151 A1	16-01-2003
